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Case Report

A Case Report of Primary Lower Rectal Spindle Cell Melanoma: Challenging Diagnosis, Difficult Treatment, and Poor Prognosis

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Abstract

Spindle cell melanoma (SCM) is a rare morphological subtype of mucosal melanoma, especially located in the lower rectal or anal region. The diagnosis of SCM is challenging because it may share some morphological and immunohistochemical features with desmoplastic melanoma or other malignant tumors. Anorectal melanoma is characterized by aggressive biological behavior, a high incidence of local recurrence and metastasis, and poor outcomes. We herein report a 56-year-old female patient with a challenging diagnosis of primary rectal SCM with a poor prognosis and review the literature.

Keywords: Anorectum, immunohistochemistry staining, mucosal melanoma, Spindle cell melanoma

Introduction

Melanoma is a disease that develops from melanocytes. Most melanomas are cutaneous in origin, but they may arise from the mucosal epithelium lining the respiratory, alimentary, and genitourinary tracts. Mucosal melanomas account for approximately 1.1%–1.5% of all melanomas. Melanoma originating from the anorectum is rare, accounting for 23.8% of all mucosal melanomas and 1% of all anorectal malignant tumors.

The diagnosis of the subtypes of mucosal melanoma is based on the tissue in which they arise. Among them, spindle cell melanoma (SCM) is a rare subtype of malignant melanoma composed of spindled neoplastic cells arranged in sheets and fascicles.[1] Most SCMs originate from the skin, eyes, and bony orbits,[1] and SCM originating from the lower rectal or anal region is peculiar and behaves more aggressively than other types of melanomas.

Primary mucosal melanoma may mimic amelanotic lesions, causing a delay in diagnosis until the patient exhibits

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advanced-stage disease, typically with widespread metastasis and poor treatment outcomes.

Case Report

A 56-year-old female with a surgical history of anal fissure and tubal ligation presented to our colorectal surgical outpatient clinic with the chief complaint of anal bleeding on defecation two times within 1 month. She denied body weight loss or bowel habit change. A rectal digital examination revealed one palpable lower rectal tumor on the left side. A stool hemoglobin test was positive. Colonoscopy showed a 2-cm-sized fragile polypoid tumor 1 cm above the dentate line [Figure 1].

A colonoscopic biopsy showed tumor fragments containing spindle cells arranged as short fascicles or interlacing bundles [Figure 2a]. Moderate nuclear pleomorphism was seen. The mitotic figure count was up to 6 HF/10 HPF. A gastrointestinal stromal tumor was first suspected. However, the tumor cells revealed negative reactivity for CD34, CD117 (c-kit), and Dog-1 [Figure 2b]. Further stains, including cytokeratin, vimentin, desmin, S100, and HMB45 were performed. The tumor cells showed positive reactivity for vimentin and scattered staining for S100. A tentative diagnosis of sarcoma, with the suspicion of a malignant peripheral sheath tumor or spindle cell type melanoma, was made.

Further complete transanal excision of the tumor was carried out. A polypoid tumor measuring 2.5 cm × 2.5 cm × 1.5 cm in size [Figure 3] was excised. Microscopically, the tumor cells showed a plumed spindle shape with obvious nuclear pleomorphism and brisk mitoses [Figure 4a]. Repeated immunohistochemical studies, including SOX-10, were done. The tumor cells showed diffuse positive reactivity for vimentin, SOX-10 [Figure 4b], and weakly positive staining for S100. Combining the histologic features, SCM was diagnosed.

Computed tomography (CT) of the chest, abdomen, and pelvis was done to stage the disease. No evidence of regional lymph node or distant metastasis was noted. According to a simple clinical staging system for mucosal malignant melanomas (MM stage) or tumor-node-metastasis staging system for colorectal cancer based on the 8th American Joint Committee on Cancer, the patient was diagnosed with clinical stage I disease. The CEA level was within normal limits. Since there is currently no consensus on further surgical intervention for anorectal melanoma with its aggressive behavior, after discussion with the patient, she chose close observation.

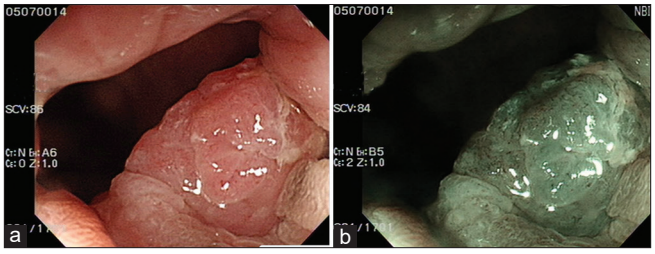

Figure 1: Colonoscopic picture. (a) One 2-cm-sized fragile polypoid tumor 1 cm above the dentate line. (b) NBI picture of the same tumor

However, 2 months later, pelvic magnetic resonance imaging [Figure 5] and positron emission tomography [Figure 6] done at the National Taiwan University Hospital (NTUH) revealed one suspicious left iliac nodule, and lymph node metastasis was favored. Postoperative sigmoidoscopy showed smooth rectal mucosa with a scar-like appearance 5 cm above the anal verge without any detectable local recurrence of the tumor. Laparoscopy was then performed, and one 1-cm-sized hard tumor on the left pelvic sidewall between the left external and internal iliac vessels was found and excised [Figure 7]. The pathology showed a spindle cell tumor, consistent with metastatic SCM, and thus stage III rectal malignant melanoma was diagnosed.

After a second operation, she was referred to a medical oncologist for systemic treatment. Chemotherapy consisting of dacarbazine and immunotherapy with nivolumab was administered.

Unfortunately, rapid recurrence of the tumor at the distal rectum was found on a CT scan after four courses of treatment. Moreover, left upper lung, hepatic S8 segment, and multiple pelvic nodal metastases with peritoneal seeding were also noted. Therefore, stage IV rectal malignant melanoma was evident. Palliative treatment was given thereafter. Colon obstruction and bilateral ureteral stenosis developed 4 months later, and we performed bilateral ureteroscopy and stenosis manipulation with double J stenting. Laparoscopy-assisted sigmoid colostomy was done following that, and cancer seeding at the pelvic wall was found [Figure 8]. Hospice care was provided, and she died 13 months after the diagnosis.

Discussion

Primary mucosal melanoma is a rare type of melanoma. It behaves more aggressively and has a poorer prognosis than cutaneous melanoma because of the late diagnosis due to their less visible location and because they are often amelanotic. It is more frequent in females, and the mean age at diagnosis is 54.5 years.[2]

Anorectal melanomas may arise anywhere from the mucosa above the dentate line to the modified epithelium of the anal

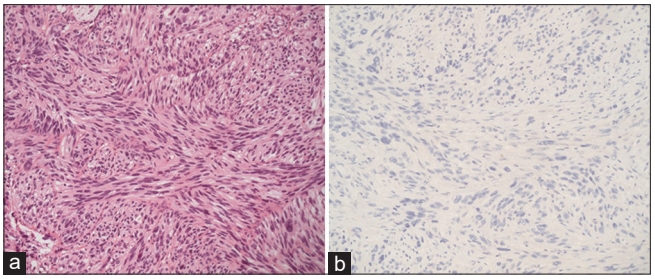

Figure 2: Microscopic features of the biopsy specimen. (a) The spindle tumor cells were arranged as fascicular or interlacing bundles in a fibrous stroma (H and E, ×200) (b) The tumor cells revealed negative reactivity for CD117 (immunohistochemistry, ×200)

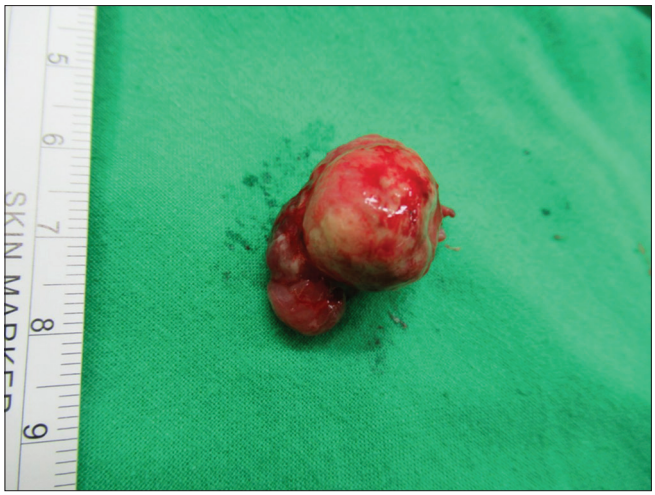

Figure 3: One 2.5 cm x 2.5 cm x 1.5 cm polypoid tumor was resected from the lower rectum

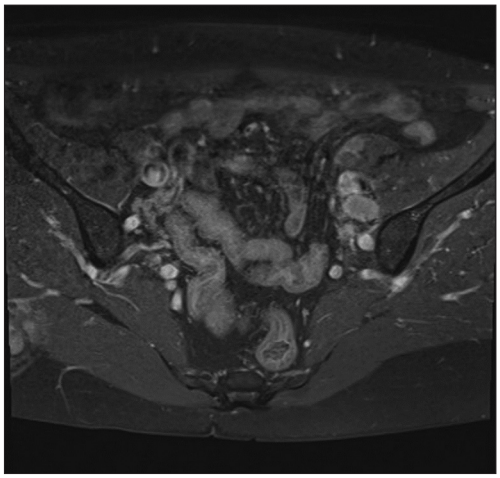

Figure 5: Pelvic magnetic resonance imaging showed a suspicious left internal iliac nodule, favoring lymph node metastasis

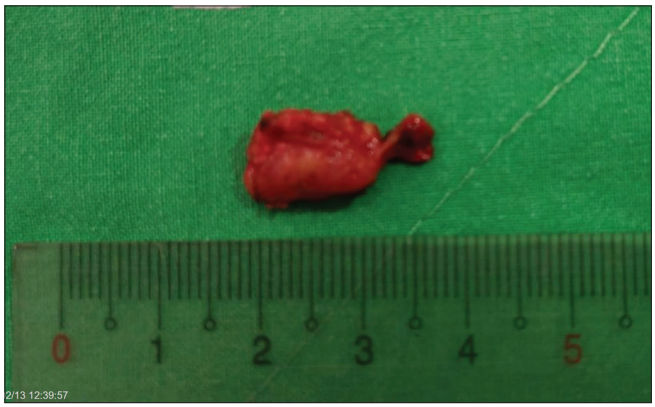

Figure 7: One 1-cm-sized hard tumor at the left pelvic sidewall between the left external and internal iliac vessels was found and excised

canal or the perianal skin, with the majority of cases occurring within 6 cm of the anal rim.[3] They are always misdiagnosed as hemorrhoids, polyps, adenocarcinoma, or rectal ulcers.[3]

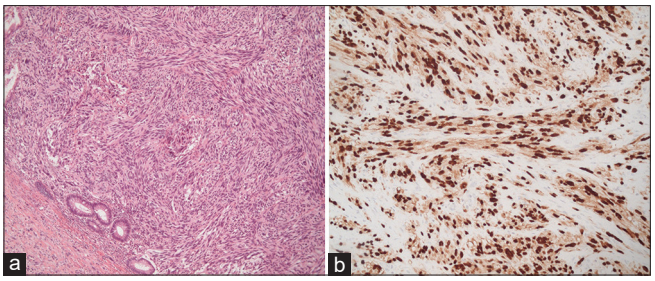

Figure 4: Microscopic features of the resected rectal tumor. (a) The neoplastic cells displayed plumped spindle nuclei with obvious nuclear pleomorphism infiltrating the colonic mucosa (H and E, ×100). (b) Immunohistochemistry showed strong reactivity for SOX-10 (×200)

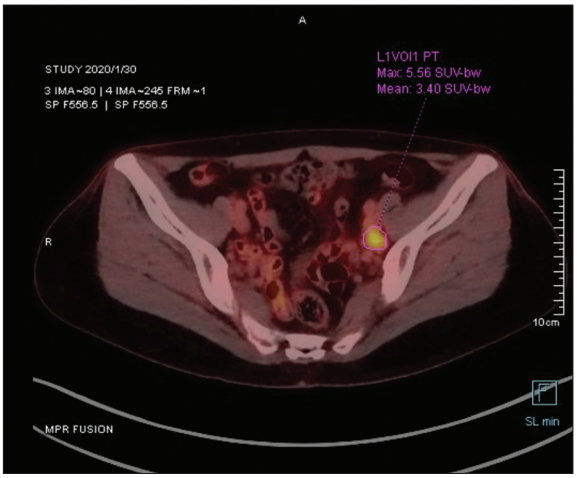

Figure 6: Positron emission tomography scan showed increased uptake in the left internal iliac node, compatible with lymph node metastasis

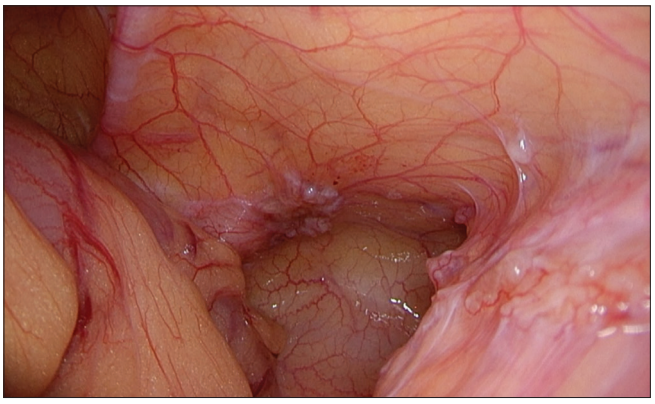

Figure 8: Diffuse peritoneal seeding was noticed during laparoscopy

This represents a significant clinical challenge since an early diagnosis and treatment are crucial.

The diagnosis of the subtypes of mucosal melanoma is based on the tissue in which they arise. Chute *et al*. reported four histologic cell types of anal mucosal melanoma: epithelioid, spindle cell, lymphoma-like, and pleomorphic.[4] Among them, SCM is a rare subtype of malignant melanoma composed of spindled neoplastic cells arranged in sheets and fascicles.[1]

Grossly, most anorectal melanomas appear polypoid, with or without pigmentation, and mostly ulcerated. Anorectal melanoma is pigmented in only one-third of cases,[5] and with considerable morphologic variability, misdiagnosis as non-Hodgkin's lymphoma, adenocarcinoma, or sarcoma is common. Therefore, the use of immunohistochemistry panels is crucial in the diagnosis of mucosal melanoma, including S100 proteins, SOX-10, MelanA, HMB-45, and tyrosinase. SCM usually reveals negative staining for melanoma markers, excluding S100 and SOX-10. KIT (CD117) expression can be present in anorectal malignant melanomas, and when present in spindle cell subtypes, can lead to confusion with gastrointestinal stromal tumors.[4] In our case, immunohistochemistry analysis revealed positive staining for vimentin, SOX-10 antibodies, and focally for S100 antibodies, whereas it showed negative staining for CD34 cytokeratin, CD117, and HMB45 antibodies.

For the management of anorectal melanoma, local wide excision of the tumor or abdominoperineal resection (APR) is the main surgical option. APR has better local control for stage I or II disease; however, there is no overall survival benefit. It should be reserved for patients with bulky local disease and carefully selected patients with local recurrence.[6]

The outcome following resection of anorectal melanoma is independent of locoregional lymph node metastasis. Lymph node status is a very powerful predictor of the outcome, but prophylactic lymphadenectomy has not been shown to influence survival.[7] Therefore, it should be reserved for patients with gross symptomatic disease. Locoregional lymphadenectomy can be achieved by preoperative CT-guided blue dye localization for suspicious metastatic lymphadenopathy during laparoscopic surgery.

The 5-year survival rate has been reported to be <20% for anorectal melanomas, with a median survival of 24 months. The time to recurrence is short, with recurrence in three-quarters of patients within 12 months of a diagnosis. Factors associated with poorer outcomes include tumor size, perineural invasion, increasing tumor thickness, positive margins, and lymph node involvement.[7]

Locoregional recurrence is invariably associated with the development of distant disease. The common sites of metastases are similar to those of cutaneous melanoma, and include the lungs, liver, brain, etc. Approximately 25% of tumors will have an activating mutation in cKIT.[8] The role of immune checkpoint inhibition (ICI), such as CTLA-4 inhibition with ipilimumab and PD-1 inhibitors with nivolumab or pembrolizumab, is not clear. ICI therapy by itself does not appear to improve survival in patients who undergo surgical treatment for anorectal melanoma. Combinations of ICI with other therapeutic modalities warrant further investigation.[9]

In conclusion, anorectal SCM is an aggressive disease with a poor prognosis. It has a reputation for aggressive biological behavior with a high incidence of local recurrence and metastasis. We need a more specific immunostaining analysis is required to make a diagnosis of SCM. Surgical resection (wide local excision or APR) remains the cornerstone and most important treatment in the management of anorectal melanoma. Locoregional lymphadenectomy should be reserved for patients with clinically apparent disease. Further clinical trials of chemotherapy, radiotherapy, or immunotherapy are needed to improve patient care and overall survival of patients with anorectal SCM.

Declaration of patient consent

The authors certify that they have obtained appropriate patient's family members consent form. In the form, the patient's family members have given the consent for the patient's images and other clinical information to be reported in the journal. The patient's family members understand that the patient's name and initial will not be published and due efforts will be made to conceal the identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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